

REMARKS

Status of Claims

Claims 1-47 are pending, and each of them has been rejected. No amendments are being made to the claims at this time. For the record, however, Applicant reserves the right to pursue inventive subject matter no longer or not yet claimed in this application in this or a related case.

Applicant respectfully requests reconsideration in view of the amendments above and the following brief remarks.

Rejections

Claims 1-47 stand rejected under 35 USC § 102(b) and/or 35 USC § 103(a) as anticipated or made obvious by U.S. patent no. 5,183,744. Applicant respectfully traverses because the '744 patent does not suggest, let alone teach, each and every element of the sole independent claim of this application, claim 1.¹ Instead, the Office has misconstrued the '744 patent in the context of claim 1. Specifically, the "electroporation plate" of claim 1 comprises a plurality of energizable "electroporation wells". See part (a) of claim 1. Unlike the "microchambers" disclosed in the '744 patent, each of these "wells" is a small vessel having at least one sidewall and a bottom, with the top being open. Thus, each "well" is a vessel that can retain a solution (e.g., a solution containing cells to be electroporated). In contrast, each "microchamber" of a device according to the '744 patent is open at the top and additionally contains an "absorption port", i.e., an opening for retaining each of two individual cells to be fused in a particular chamber, on the surface opposing the open top of each chamber. It is clear from the drawings and the disclosure of the '744 patent that fluid can and does flow through the "absorption ports". Thus, the "microchambers" of the '744 patent are, by definition, not "wells" or vessels for holding a solution independently of some other structure, but instead are structures that can be used to proximately position two cells so that they can be fused upon application of an electrical load.

At this point it may be helpful to briefly describe the process for the which the device of the '744 patent is reportedly used, i.e., to facilitate a plurality of cell fusions, each involving two individual cells. As the '744 patent explains, this is accomplished by processing a cell-containing

¹ It is axiomatic that if a reference does not anticipate an independent claim, it cannot anticipate a claim that depends from such independent claim.

solution so that each microchamber comes to contain two individual cells retained in close proximity on that chamber's absorption port. See Figure 6 of the '744 patent and the accompanying disclosure in the '744 patent. Cell fusion is then reportedly effected by applying a voltage between two electrodes, with fusion progress being monitored by voltage changes. The electronics to mediate cell fusion are illustrated in Figure 11 of the cited patent, and the changes in voltage between the electrodes at different stages of the process are shown in its Figure 12. A graphical representation of cell destruction is shown in Figure 13 of the '744 patent. Various circuits for loading the electrodes in or adjacent to each microchamber are shown in Figures 8 and 9 of the cited patent, while Figure 10 shows a device having the wiring pattern shown in Figure 9, with embedded electrodes.

The '744 patent reports that in preferred embodiments, isotonic solutions of differing specific gravity as compared to the cells to be treated are used to help manipulate the cells. For example, two solutions, one having a higher specific gravity which causes the cells to float to and become concentrated at the upper surface and one having a lower specific gravity, thereby causing cells to sink, are used to help cell holding efficiency near the absorption ports.

Returning to the comparison between the electroporation device of claim 1 and the cell fusion-promoting device of the '744 patent, each "microchamber" of a device according to the '744 patent is open at the top and also has an opening at the bottom to allow solution to be withdrawn and two cells to be positioned proximate to each other for subsequent fusion. It is clear that such a structure is not a well, vessel, or other structure independently capable of holding or retaining a solution. On the other hand, in a device according to claim 1 each "electroporation well" is indeed a small vessel for holding a cell-containing solution with an opening only at the top. Of course, this does not preclude the inclusion of a port positioned near the bottom of the well or chamber that can be opened to drain a solution from the well (as may be desired, for example, after electroporation). Indeed, such a port (element 38) is shown in Figures 3A-D of our client's application.

Because a "microchamber" of a device according to the '744 patent is not, by definition and structure disclosed in the cited patent, a "well", the '744 patent cannot anticipate claim 1. Since claim 1 is thus free of the cited art, any claim that depends from it must also be free of the art. Finally, as the Office has not advanced any other objection to or rejection of the claims,

Applicant respectfully submits that each of claims 1-47 is patentable and he thus respectfully requests prompt issuance of a notice of allowance. Of course, should any issue or question remain, the Examiner is encouraged to telephone the undersigned so that they may be promptly resolved.

Respectfully submitted,

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